

# Emergency Medicine Curriculum





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## The Structure of the emergency medicine Training Program

The Egyptian Fellowship Board requires three years of supervised training program that must be conducted in accredited hospitals before sitting for the final examination. It also requires the presentation of a short thesis on a subject approved by the supervisors. A list of accredited hospitals will be announced yearly by the board.

The emergency medicine training program follows your graduation from medical school and it does not require any further postgraduate studies as an entry requirement. It consists of three years of residency in emergency medicine. During the entire training program the candidate must be dedicated full time and must be fully responsible for patient care both at emergency and routine settings.

### First year

1. The trainee should spend the first five months in accredited emergency medicine departments including the care of adults (four months) and children (one month). He should then spend two months in surgery rotation and two months in general medicine rotation. One month should be spent in anesthesia department and operative theater and one month in orthopedic department.
2. Candidate should attend and study the curriculum of applied basic science and fundamentals of emergency medicine during this year. He should attend at least 75% of lectures in these subjects. He should pass successfully through the first part Fellowship Exam before being promoted to the third year of training.
3. He should be actively involved and fully responsible for patient care including sharing in making decisions about diagnosis and management under supervision of the consultants.
4. He must attend 75% of weekly meetings including patients' rounds, tutorials and journal clubs
5. His performance will be monitored by His trainer and a report made of his performance on monthly basis to the Egyptian Fellowship Board.

### Important notice

Trainees must pass successfully all the foundation courses **before being promoted to the second year of training.**

Full information about foundation courses is available at The EF website and administration office

**Second year**

- 1.The trainee should spend four months in adults emergency medicine rotation and one month in each of the following specialties; pediatric emergency, obstetrics and gynecology, plastic surgery, orthopedics and coronary care units. In addition, he should spend two weeks block rotations in each of the following specialties; toxicology, radiology, otolaryngology and ophthalmology.
- 2.During all rotations, trainees will work as residents in the training specialty and they must fulfill all residents jobs defined by supervisors and trainers
- 3.They should be responsible under supervision for patients' routine work.
- 4.They must take supervised shifts according to the hospitals requirements and regulation.
- 5.They must go into ambulance calls either alone or with seniors according to hospital needs
- 6.They must respond to hospital departments emergency consultations as defined by the hospital rules and regulations

**Third year**

- 1.The trainee should spend four months in adults' emergency medicine rotation, one month in pediatric emergency medicine rotation, one month in general surgery, two months in intensive care units, one month in neuro psychiatry, one month in neurosurgery And one last month could be spent as an elective in any specialty related to emergency medicine
- 2.During this year the trainee should get more responsibility for patient care and management in emergency departments.
- 3.He should also be involved in the preparation of short thesis or audit project on a subject approved by the supervisor of the Emergency fellowship training program.

**Specific requirements and obligations****During the emergency department rotations**

- 1.The trainee will be responsible for supervised admission to the emergency room through:
  - a. Emergency assessment of the case and rapid documentation of initial data
  - b. Request of investigations, recording and interpreting the results
  - c. Initiation of management including resuscitation and stabilization
  - d. Request for proper consultations
- 2.He should be responsible for safe and timely referral in indicated conditions
- 3.He should lead ambulance team services upon request
- 4.He should respond to calls for help in the management of life threatening conditions in different hospital departments according to his level of training and the action requested

## **During the hospital rotations (departments other than emergency department)**

### **1. The admitted patients**

- a. The trainee will be responsible for supervised admission of patients from the outpatient department or emergency room.
- b. He will share in the completion of the following documents under supervision for each case:
  - Complete history and physical examination form.
  - Investigation requests, (laboratory, radiology, pathology, etc.).
  - Results of the investigations.
  - Plan of management.
  - Daily progress notes.
  - Order and medication sheets
  - Order the necessary diagnostic procedures
  - Discussion of the case with the trainer and consultants
  - Discharge summaries.
  - Sick leaves and medical reports.
  - The Trainee should inform the senior staff of any high risk patient admission

### **2. Outpatient clinics**

The trainee should attend the outpatient clinics related to the rotation and its subspecialties as requested by trainers and supervisory staff..

### **3. Mandatory clinical and academic activities**

The trainee should attend and participate in the mandatory academic and clinical activities of the department. Attendance and participation should not be less than 75% of the total number of activities within any training rotation / period including.

- Daily morning endorsement meetings.
- Clinical round presentation, at least once weekly to cover various topics, problems, research, etc.
- Journal club meeting.
- Interdepartmental Meetings
- Mortality and morbidity conferences

### **4. The log book**

The trainee should keep a Log Book where he record all activities and skills performed and learned during the training program. The activities should be dated and categorized to whether been performed by the trainee him/herself or as an assistant or participant. Each activity registered in the Log book should be counter signed by the trainer and finally the educational supervisor. The Trainer and educational supervisor shall sign the completed Log Book.

### 5. The research or audit project

The trainee shall undertake at least one research project or audit during the training program under the guidance and supervision of a nominated supervisor (nominated by the scientific council). Such project or mini thesis should be written before the trainee is accepted for admission to the final certifying examination.

### 6. Before the completion of the training program

The trainee should have completed satisfactorily the Rotations described in the structure of the program and performed him/herself and assisted in the various requested procedures.

## General rules and regulations

### a. Holidays and on call duties

According to Ministry of Health and Population regulation

### b. Evaluation procedures

- a. Performance of the trainee shall be evaluated on regular and continuous basis the evaluation process should involve all aspects of the training including theoretical, clinical and investigative procedures skills as well as the attendance and participation.
- b. The trainers who are required to write confidential reports of the performance of each trainee should evaluate the trainee periodically. The trainee should not be allowed to proceed in the training program and move to the next rotation unless he/she attains a satisfactory level of performance acceptable to the responsible trainer and educational supervisor.
- c. The trainee shall not be allowed to proceed to year 3 before successfully passing the first part Exam

## Interruption of training

It is not permissible to interrupt such a structural training program except in major unavoidable circumstances. Such circumstances should be convincing and approved by the Secretary General. The Interruption once approved should not be for more than one year. Interruption of the training program for more than one year shall result in dismissal from the program and cancellation of the preceding training period.



## Rational statement

The purpose of this curriculum is describe in explicit details, the knowledge, skills, behaviours and attitudes expected from emergency physicians upon completion of training in Egyptian Emergency Fellowship. The curriculum also describes the methods of teaching and learning that will be used to facilitate the delivery of curriculum. In addition, it highlights the different methods of trainee's performance evaluation that are going to be used whether formative or summative.

The curriculum contents have been formulated through the following methods:

1. Revision of previous Egyptian Fellowship Emergency medicine curriculum
2. Revision of international curricula for postgraduate training in emergency medicine. We specifically mention the Royal college of emergency medicine curriculum approved by the PMETB and the Australian Royal college of emergency medicine curriculum
3. Consultation of experts in the field of emergency medicine and other related specialties. Experts were consulted regarding their vision for emergency medicine practice in Egypt and how international standards would fit. We also consulted them regarding the level of knowledge and skills required in each training year and in each speciality while putting in mind expected practice constraints
4. The curriculum then was re-revised by representative members of the emergency medicine scientific council and approved by the council in February 2008

## Curriculum aim

The aim of the Emergency Medicine curriculum is to equip trainees with the knowledge, skills and attitudes required for the prevention, diagnosis, and management of the acute and urgent aspects of illness and injury affecting patients of all age groups

## General intended learning outcome

By the end of training in emergency medicine, trainees will be able to:

1. **Apply** wide varieties of knowledge about disease causation, path physiology, clinical presentation and management at the point of patient care. These knowledge includes life threatening and emergency diseases affecting both adults and children at various body organs and systems
2. **Watch** over patients with a wide range of pathologies from the life threatening to the self limiting in all age groups.
3. **Establish** the diagnosis and differential diagnosis especially in life threatening situations.
4. **Identify** the critically ill and injured, provide safe and effective immediate care and initiate or plan for definitive care.
5. **Perform** competently resuscitation and all other practical procedural skills mentioned in the curriculum
6. Appropriately **differentiates** between various patients expected pathways from hospital admission to safe discharge
7. **Works** in the difficult and tough environment of the Emergency Department, prioritize patients and tasks and be able to respond to new urgent situations
8. **Work** effectively as a member or a leader of a multi-disciplinary team and practice good communication skills
9. **Refer** appropriately for in-patient care, primary care or specialized clinicians.
10. **Be committed** to the highest standards of care and **behave ethically** and professionally as expected from emergency physicians and all health care professionals
11. Continuously **improve** his practice by utilising the best available research evidence and be committed to lifelong learning
12. **Educate** colleagues and junior doctors about matters related to individual patient care and good medical practice

**Emergency medicine rotations****First year****Emergency medicine  
4 months****Pediatric emergency  
1 months****General surgery  
2 months****General medicine  
2 months****Anesthesia And OR  
1 month****Orthopedic  
1 month****One month  
Vacation****Second year****Emergency medicine  
4 months****Pediatric emergency  
1 months****Obstetrics and Gynecology  
1 month****plastic Surgery and burn  
centers  
1 month****Orthopedic  
1 month****Toxicology and Radiology  
1 month****Coronary care  
1 month****Ophthalmology / ENT  
1 month****One month  
Vacation****Third year****Emergency medicine  
4 months****Pediatric emergency  
1 months****General surgery  
1 months****ICU  
2 month****Neurology Psychiatry  
1 month****Neurosurgery  
1 month****Elective specialty  
1 month****One month  
Vacation**

# First Part Syllabus

# Basic science Topics

## Anatomy

- Surface anatomy of The human body
- Nervous system (Nerve supply of body wall and limbs, dermatomes, myotomes, nerve supply of head and neck, autonomic nervous system, sympathetic nervous system, parasympathetic nervous system, cranial autonomic ganglia)
- Central Nervous System (Brain, Mid Brain, Brain Stem, Cerebellum and Spinal Cord)
- Head and Neck (Skull and Cranial Cavity, Face, Mouth, Pharynx, Larynx, Ear, Neck, Vessels, Cranial Nerves, Vertebral Column, Spinal Canal and the Eye)
- Upper Limb (Pectoral Girdle, Breast and Axilla, Scapular Region, Arm, Forearm, Hand, Joints, Vessels and Nerves)
- Lower Limb ( Front of the Thigh, Adductor Compartment, Gluteal Region, Hamstring Compartment, Popliteal Fossa, Front of the leg, Dorsum of the foot, Peroneal Compartment, Calf, Sole, Joints, Vessels and Nerves)
- Thorax ( chest wall and diaphragm, Mediastinum, Heart and Great Vessels, Airways and Lungs)
- Abdomen and Pelvis (Abdominal Wall and Peritoneum, Gut, Liver, Spleen, Pancreas, Kidneys, Ureters, Bladder and Urethra, Reproductive Organs, Joints of Pelvis, related Vessels and related Nerves)

## Pathology

- Tissue Repair and inflammation
- Inflammation
- Repair by healing, scar formation, and fibrosis
- Cutaneous wound healing
- Fibrosis
- Hemodynamic disturbances
- Edema
- Hyperemia and congestion
- Hemorrhage
- Thrombosis
- Hemostasis
- Embolism
- Infarction and atherosclerosis
- Shock

**Physiology/Pharmacology and Microbiology****Cardiology**

- Physiological principles of cardiac cycle and cardiac conduction
- Homeostasis of the circulation
- Atherosclerosis
- The clinical pharmacology of emergency cardiac drugs (drugs used in arrest, inotropes and other emergency cardiac medications)
- Antiarrhythmic medications (sodium channel blockers, beta blockers, action potential prolonging drugs and calcium channel blockers)
- Antihypertensive medications (beta blockers, ACE inhibitors, vasodilators and sympatholytics)

**Respiratory system**

- Physiology of gas exchange: ventilation, perfusion, ventilation and perfusion matching
- Acid-base homeostasis
- The clinical pharmacology of Sympathomimetics, Oxygen therapy and steroids in respiratory problems

**Gastroenterology and hepatology**

- Principles of action of liver
- Laboratory markers of liver dysfunction
- The pharmacology of (antiemetics, antidiarrheals, antiulcer medications and antispasmodics)

**Hematology**

- Coagulation
- The clinical pharmacology of drugs used in anticoagulation, thrombolysis and angiography (streptokinase, tissue plasminogen activator, Abciximab, ticlopidine, aspirin, warfarin & heparin)

**Microbiology/ infectious diseases**

- General features of microbial activity and modes of transmission
- Viral and bacterial infections and mechanism of resistance to antimicrobial therapy
- Features of other infectious diseases fungi, protozoa, helminths
- Principles of sterilization and infection control
- Antimicrobial therapy (Principles of action, Beta lactam agents, Aminoglycosides, Sulpho amides, Quinolones, Antimycobacterial agents, Antifungal, Antiviral, Disinfectants, Anti-protozoal, anti-helminthic and Macrolide agents)

### Neurology and pain

- Neuroanatomy and cerebral blood flow
- Pathophysiology of pain
- The clinical pharmacology of analgesics and anti-inflammatory drugs (aspirin and other NSAD)
- Pharmacology of local anesthetic
- Hypnotics and sedatives (benzodiazepine, barbiturates, opiates and its antagonists, alcohol)
- Anticonvulsants (phenytoin, carbamazepine, valproate)

### Renal medicine

- Homeostasis of fluid, electrolytes and acid base
- Measurement of renal function
- Metabolic basis of acute, chronic, and end-stage renal failure and associated treatments

### Endocrine system

- Drugs used in treatment of diabetes
- The clinical pharmacology of steroids

### Environmental pathology

- Industrial exposure
- Physical injury

### Toxicology

- Gastric decontaminants (emetics and adsorbents)
- Overdose

## Core emergency medicine Topics/ cases that is subject for the first part

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- **Cardiopulmonary resuscitation**
- **Pain, anesthesia and sedation**
- **Diabetes**
- **Acute coronary syndrome**
- **Bronchial asthma**
- **Initial assessment of multi trauma patients**
- **Blood product transfusion and principles of fluid therapy**
- **Unconsciousness and coma**
- **Urine retention and renal colic**
- **Burns**

# Detailed Curriculum of Emergency Medicine



## Resuscitation

### a. Airway (intended learning outcome)

#### Knowledge

**Upon completion of ALS course and First emergency medicine rotation, Trainees should be able to:**

1. **Identify** The conditions of The airway (patent, obstructed and at risk) and its causes.
2. **Discuss** methods of maintaining a patent airway i.e. head tilt, jaw thrust, suction and so on.
3. **Outline** The principles of bag valve mask ventilation.
4. **Define** different oxygen delivery systems.
5. **Describe** The indications for use of Laryngeal Mask Airway and methods of its application.
6. **List** The indications and potential complications of tracheal intubation
7. **Discuss** The indications for use of pharmacological agents in induction and maintains of anesthesia, their potential complications and side effects.
8. **Outline** The principles of simple ventilators.
9. **Discuss** The principles of various monitoring techniques and their Values.
10. **Describe** the management of failed airway drill, including needle oxygenation and cricothyroidotomy.
11. **List** The indications for urgent tracheostomy.
12. **Explain** The outcomes of respiratory arrest in adults and children.

#### Skills

**Upon completion of ALS course and First emergency medicine rotation, Trainees should be able to:**

1. **Assess** airway and optimize The patient position for airway Management.
2. **Recognize** difficult airway and be able to use different approaches to handle it.
3. **Manage** airway using different adjuncts (oropharyngeal and nasal)
4. **Start** ventilation using bag valve and mask.
5. **Choose** appropriate laryngeal mask airway and introduce proficiently.
6. **Choose** appropriately The size and length of endotracheal tubes and laryngoscope blade.
7. **Perform** competently endotracheal intubation.
8. **Manage** difficult intubation in a proficient way using different methods (gum elastic bougie, introducers and endotracheal suction).
9. **Manage** tracheostomy tube and its complications.
10. **Identify** correct and incorrect placement of endotracheal tube.
11. **Perform** needle/surgical cricothyroidotomy and percutaneous transtracheal ventilation.
12. **Interpret** capnograph trace if available.
13. **Appropriately** use pocket mask during field resuscitation.
14. **Recognize** signs of choking and manage it competently in conscious and unconscious patients according to age appropriate logarithm.
15. **Recognize** self limits and ask appropriately for senior advice.

## B. Cardiac arrest/pre arrest (intended learning outcome)

### Knowledge

Upon completion of ALS course and First emergency medicine rotation, Trainees should be able to:

1. **Summarize** The ALS and APLS treatment algorithms.
2. **Outline** The principles of cardiac arrest management in special circumstances (e.g. pregnancy, asthma, anaphylaxis, hypothermia or trauma).
3. **Identify** The outcomes of pre-hospital arrest.
4. **Discuss** The principles of post resuscitation care.
5. **Outline** The causes of peri-arrest Arrhythmias and its management including  
The knowhow of defibrillator operations.
6. **Discuss** The causes and prognostic features of cardiac arrest in children.
7. **Explain** The ethical and legal dilemmas surrounding resuscitation.

### Skills

Upon completion of ALS course and First emergency medicine rotation, Trainees should be able to:

1. **Perform** effective BLS and A.L.S in adults and children.
2. **Recognize** different rhythm problems and treat them.
3. **Perform** safe and effective defibrillation ( safely refers to all concerned parties, patient, resuscitation team and himself).
4. **Decide** appropriately when to discontinue resuscitation.
5. **Apply** competently peripheral and central venous lines.
6. **Perform** external pacing.
7. **Administer** drugs endotracheally.
8. **Work** effectively as a team member and team leader during resuscitation.
9. **Communicate** effectively with patient relatives in difficult situations.

## C. Shock (intended learning outcome)

### Knowledge

Upon completion of ALS course and First emergency medicine rotation, Trainees should be able to:

1. **Define** shock and outline its pathophysiology
2. **Discuss** The differential diagnosis and clinical presentation of different types of shock (distributive, hypovolemic, cardiogenic and obstructive)
3. **Outline** The principles of hemodynamic monitoring
4. The **indications and methods** of action of vasoactive drugs in The management of shock
5. **List** The indications for imaging in shocked patients (echocardiography)

### Skills

Upon completion of ALS course and First emergency medicine rotation, Trainees should be able to:

1. Gain peripheral and central venous access in shocked patients.
2. Perform arterial line insertion.
3. Use fluids appropriately in shocked and trauma patients.
4. Use competently and appropriately intraosseous and venous cutdown Techniques.
5. Recognize The need for surgical referral timely and refer indicated cases Appropriately.

### d. Coma (intended learning outcome)

### Knowledge

Upon completion of ALS course and First emergency medicine rotation, Trainees should be able to:

1. **Define** coma and list its causes.
2. **Describe** The pathophysiology of different types of coma.
3. **Discuss** The differential diagnosis of coma.
4. **Discuss** initial investigations and principles of management of different types of coma.

### Skills

Upon completion of ALS course and First emergency medicine rotation, Trainees should be able to:

1. **Apply** The A,B,C,D,E management approach to manage and stabilize coma Patients.
2. **Protect** coma patients using appropriate measures (log rolling and urinary catheter application).
3. **Consult** and refer to different specialties in different types of coma.

## Anesthesia and pain management

### a. pain management and local anesthesia (intended learning outcome)

#### Knowledge

**Upon completion of emergency medicine rotations, Trainees should be able to:**

1. **Recall** the anatomy and physiology of nerves relevant to the subject of local anesthesia..
2. **Explain** different pain scores used for adults and children.
3. **Discuss** The rational for use of analgesics in The ER.
4. **Describe** The mode of action of different analgesics (paracetamol s, NSAIDs, Opioids, Ketamine and Entonox), their route of administration, methods of monitoring their effect and expected side effects and Interactions.
5. **Recognize** local policies for controlled drugs.
6. **Outline** the role of regional and local anesthesia in the management of pain (regional include intravenous regional anesthesia ).
7. **Identify** non pharmacological methods of pain management.

#### Skills

**Upon completion of the emergency medicine rotations, Trainees should be able to:**

1. **Assess** children and adults for pain and recognize The pain severity.
2. **Select** and safely prescribe appropriate analgesics, using The correct dosage and route of administration..
3. **Discuss** options for pain relief with The patient.
4. **Treat** The underlying cause of pain and seek senior and specialist advice when needed.
5. **Undertake** The following nerve blocks and know their contraindications:
  - i. Digital
  - ii. Infiltration
  - iii. Surface
6. **Calculate** maximum dose of local anesthesia for any given patient.
7. **Recognize** The emergency physician limitations in The use of local anesthesia and ask for help appropriately.

b. Conscious sedation  
(intended learning outcome)

**Knowledge**

1. Describe The role of conscious sedation in The ER.
2. Recognize risk factors for sedation (airway, drugs, alcohol and comorbidities).
3. Outline The pharmacology, dosage and route of administration of Sedatives.
4. List The indications and types of antagonists.
5. Define methods of monitoring and indications for discharge (recovery score).

**Skills**

1. Provide sedation and safely titrate The drug in a monitored environment.
2. Early recognize and manage over sedation.
3. Assess and manage airway and deal appropriately with complication.
4. Seek consultations from anesthesiologists and seniors when indicated.

**Acid base and electrolyte disorders**

a. Acid base disorders  
(intended learning outcome)

**Knowledge**

**Upon completion of the First emergency medicine rotation, Trainees should be able to:**

1. Discuss The causes, physiological basis and clinical manifestations of acute and chronic disorders of acid/base balance.
2. Explain The anion and osmolar gap.
3. Describe The principles of management of acid-base problems.

**Skills**

**Trainees should be able to:**

1. Interpret arterial blood gas results.
2. Calculate alveolar gas equation and A-a gradient.
3. Take arterial blood gas samples from The radial and femoral artery safely and competently.
4. Insert arterial blood line if indicated and take arterial blood samples.

B. Fluids and electrolytes  
(intended learning outcome)

**Knowledge**

1. **Describe** The volume and composition of different body fluid Compartments.
2. **Enumerate** constituents of common crystalloid and colloid solutions.
3. **Discuss** common or life threatening electrolyte disturbances, their clinical presentation and methods of management.
4. **Identify** The etiology and pathophysiology and The clinical manifestations of dehydration in adults and children.

**Skills**

1. **Use** appropriate fluid types and volumes in different clinical conditions presented to The ER.
2. **Avoid** fluid overload and recognize its early manifestations.
3. **Treat** safely and competently common or life threatening electrolyte Disturbances.
4. **Identify** adults and children with dehydration and recognize any potential Complications.
5. **Calculate** fluid losses and provide appropriate fluid replacement for treatment of dehydration.

## Infectious diseases and sepsis

### Knowledge

#### Topics covered by lectures

- The general principles for identification and management of infections in The ER
- Sepsis and septic shock
- CNS infections
- Needle stick injury
- Fever without focus in children

**Upon completion of emergency medicine rotations, Trainees should be able to:**

1. Describe the epidemiology, microbiology, pathology and clinical manifestations of common and life threatening infections that presents to The ER in Egypt (both in adults and children).
2. **Outline** their potential complications , methods of diagnosis and principles of management.
3. **Define** sepsis and describe The inflammatory response and clinical presentation of septic shock.
4. **Summarize** The principles of management of sepsis and septic shock in The emergency department.
5. **Recall** The causes and manifestations of infections in immunocompromized hosts.
6. **Understand** The national policies and procedures followed in case of needle stick injury.

### Skills

**Upon completion of emergency medicine rotations, Trainees should be able to:**

1. **Recognize** patients presenting with various infections to The emergency and initiate appropriate investigations and treatment.
2. **Stabilize**, initiate treatment and refer patients presenting with serious infections that must be treated in specialized centers like fever hospital or CCU.
3. Immediately **recognize** and rapidly resuscitate patients with septic shock, meningococcal meningitis and toxic shock syndrome.
4. **Use** appropriately vasopressor agents and initiate antibiotic therapy in case of septic shock..
5. **Consult** infection disease specialists and refer for fever hospital or specialized infection center when appropriate.
6. In case of needle stick injury, **select** appropriate investigations and treatment according to local/national policy.

### Infections in The ER

#### Clinical presentations

#### 1-Upper respiratory tract infections

- Tonsillitis
- Sinusitis
- Otitis media
- Laryngotracheitis

#### 2-Lower respiratory tract Infections:

- Bronchitis
- Pneumonia

#### 3-Infectious diarrhea and Gastroenteritis

#### 4-Urinary tract infections

#### 5-Fever with rash in children

#### 6-CNS infections

- Meningitis
- Encephalitis

#### 7-Infections in immunocompromized host:

- Infection in nephrotic syndrome and renal transplant recipient
- Febrile neutropenic cancer and non cancer patients
- Infection in adults and children with immuno-deficiency

## Rheumatology

### Topics and lectures in Rheumatologic emergencies:

1. Arthritis in The Emergency room
2. Acute lower back pain (guidelines for diag-

### Knowledge

1. Describe The etiology, pathology , clinical presentation and differential diagnosis of acute arthritis in The ER (both monarticular and polyarthritis).
2. Explain The causes and principles of management of acute lower back pain in The emergency room.
3. Recall The clinical presentation of other rheumatologic presentations to The ER (tendinitis, bursitis and peripheral nerve syndromes).
4. List The complications of immunosuppressive therapy that can brought rheumatology patients to The ER

### Skills

1. Assess, patients presenting to The ER with acute arthritis, initiate investigations and refer appropriately to inpatient service, orthopedic consultation or others.
2. Differentiate septic arthritis from other causes through clinical examination, ultrasonography and plain radiography.
3. Initiate pain management in case of acute lower back pain and refer patients appropriately.
4. Consult when indicated rheumatologists, neurosurgeons or orthopedic Surgery.

### Rheumatologic cases in The ER:

1. Rheumatic arthritis
2. Rheumatoid arthritis
3. Septic arthritis
4. Mono or poly arthritis for D.D



# Diabetes and other endocrinologic disorders

## Topics and lectures in endocrinologic emergencies

1. Diabetic ketoacidosis in adults
2. Diabetic ketoacidosis in children
3. Other endocrinologic emergencies

## Knowledge

1. **Outline** The clinical presentation, methods of diagnosis and precipitating factors for The following conditions
  - a. Diabetic ketoacidosis
  - b. Hyperosmolar non ketotic coma
  - c. Hypoglycemic coma
2. **Discuss** The principles of their management based on nationally approved guidelines and protocols
3. **Summarize** The emergency presentations of The following endocrine conditions and how to suspect them
  - a. Thyroid storm and hypothyroid crises
  - b. Pheochromocytoma
  - c. Pituitary failure and diabetes insipidus

## Skills

1. **Anticipate** diabetes and its potential complications in The ER
2. **Diagnose** through clinical and laboratory assessment The following conditions
  - a. Diabetic ketoacidosis
  - b. Hyperosmolar non ketotic coma
  - c. Hypoglycemic coma
3. **Manage** diabetic ketoacidosis and hyperosmolar non ketotic coma through The appropriate prescription of fluids, electrolytes and other lines
4. **Measure** and Interpret blood sugar results at The patient bed side using glucose strips and urine dipstick
5. **Rapidly** and appropriately administer glucose and glucagon in case of hypoglycemia
6. **Call** for specialized help from endocrinologists and ICU specialists
7. **Initiate** symptomatic and lifesaving management in The following conditions while requesting specialized help
  - a. Thyroid storm and hypothyroid crises
  - b. Pheochromocytoma
  - c. Pituitary failure and diabetes insipidus

## Endocrinologic cases in The ER

1. Diabetic ketoacidosis in adults and children
2. Hyperosmolar non ketotic coma
3. Hypoglycemia
4. Thyroid storm
5. hypothyroid crises
6. Pheochromocytoma
7. Pituitary failure
8. Diabetes insipidus
9. Other complications of diabetes

## Cardiac emergencies

### Knowledge

1. **Discuss** The common and life threatening causes of chest pain and their associated clinical presentations
2. **Explain** The clinical manifestations of different acute coronary syndromes (stable and unstable angina and acute myocardial infarction)
3. **Outline** The pathophysiology of ST elevation myocardial infarction and non ST elevation myocardial infarction
4. **Discuss** The principles of investigation and management of acute coronary syndromes
5. **Outline** The principle of management of heart failure as a complication of acute myocardial infarction
6. **Define** syncope, list its important causes and outline methods of diagnosis
7. **Discuss** The etiology, pathophysiology, clinical presentation and management of heart failure
8. **List** common and life threatening Arrhythmias that presents to The ER and discuss how to diagnose them
9. **Discuss** The principles of management of Arrhythmias (based on recognized guidelines) and mention The indications for pacing
10. **List** The causes, clinical manifestations, methods of management and prognosis of cardiogenic shock
11. **Be aware** of other cardiac presentations to The ER (endocarditis, congenital heart diseases in adults and hypertensive emergencies)

### Topics and lectures in cardiac emergencies

1. Differential diagnosis of chest pain in The ER
2. Emergency management of acute coronary syndromes
3. Syncope
4. Congestive heart failure
5. Cardiac Arrhythmias and their ER presentation and management
6. Hemodynamic instability and cardiogenic shock
7. Other cardiac emergencies

## Skills

1. Promptly **assess** patients presenting with chest pain in The ER, risk stratify them and differentiate between cardiac and non cardiac causes
2. **Initiate** emergency treatment for patients presenting with acute coronary syndromes (including oxygen, proper analgesia, aspirin and nitroglycerine)
3. **Recognize** The indications for thrombolysis and immediately call for help from CCU and cardiology specialists
4. **Perform** and Interpret correctly The results of ECG and interpret The results of cardiac enzymes
5. **Early** recognize and treat complications of ACS (Arrhythmias, pulmonary edema, hypotension and cardiogenic shock)
6. **Risk stratifies** patients with syncope and request appropriate investigations. In addition, differentiate cases who requires admission from cases who could be discharged for follow up with cardiology clinic
7. **Investigate** and treat patients with heart failure (whether left or right) and recognize The indications for mechanical ventilation
8. **Diagnose** and treat Arrhythmias according to resuscitation council guidelines.
9. **Perform** external pacing
10. Early **recognize** patients with cardiogenic shock due to any cause, initiate investigations and treatment, stabilize and refer appropriately for ICU
11. **Recognize** patients presenting with hypertensive emergencies to The ER and initiate treatment them appropriately
12. **Have** a high index of suspicion for other possible cardiac presentation to The ER ( pericarditis, pericardial effusion, carditis and congenital heart

### Cardiac cases in The ER

1. Chest pain (cardiac and non cardiac)
2. Acute coronary syndromes
  - a. Angina
  - b. Acute myocardial infarction
3. Syncope
4. Heart failure in The ER
  - a. Rheumatic heart
  - b. Secondary to ACS
  - c. Cardiomyopathies and other causes of heart failure
5. Arrhythmias
  - a. Atrial
  - b. Ventricular
  - c. Complex Arrhythmias
6. Cardiogenic shock
7. Pericarditis
8. Pericardial effusion
9. Hypertensive emergencies

## Respiratory emergencies (Respiratory distress and respiratory failure)

### Knowledge

1. **Explain** The pathophysiology of bronchial asthma, its clinical manifestations and principles of management in emergency situations
2. **Outline** The indications and difficulties of mechanical ventilation in bronchial asthma
3. **Discuss** The causes of pneumonia and methods of diagnosis and treatment
4. **Describe** The causes, presentation and management of spontaneous pneumothorax
5. **Discuss** The etiology, signs and symptoms, investigations and treatment of pulmonary embolism
6. **Outline** The differential diagnosis of pulmonary embolism and its prognosis
7. **Recall** The causes and principles of management of chronic obstructive airway disease
8. **Define** respiratory failure, list its common and important causes and outline The methods of investigations and principles of treatment
9. **List** The indications for mechanical ventilation in case of respiratory failure
10. **Outline** the essential features of other important respiratory emergencies (e.g. foreign body inhalation and irritants , pleural effusion, hemoptysis and acute lung injury)

### Topics and lectures in respiratory emergencies

1. Bronchial asthma (diagnosis and management)
2. Respiratory failure
3. Respiratory emergencies due to upper airway problems
4. Respiratory emergencies related to lower airway problems

## Skills

1. **Recognize** bronchial asthma, differentiate patients according to asthma severity and install appropriate therapy according to accepted guidelines
2. In case of bronchial asthma, **Early identify** patients who might require mechanical ventilation and ask for senior or specialist support
3. **Admit** bronchial asthma cases to hospital care, ICU or safely discharge according to patient presentation and initial treatment outcomes
4. In case of spontaneous pneumothorax, he should be able to **insert** Intercostal drain after consultation with pulmonology or cardiothoracic specialists
5. **Initiate** investigations in case of suspected pulmonary embolism and ask for specialist support
6. **Initiate** appropriate treatment for COPD and prevent or treat precipitating factors
7. **Identify** COPD cases that require mechanical ventilation
8. **Risk stratify** patients with pneumonia and differentiate those who requires hospital, ICU admission from those who can be referred for primary care
9. **Investigate** and treat patients with pneumonia and recognize cases with associated sepsis
10. **Diagnose** clinically and by lab respiratory failure
11. **Initiate** treatment for respiratory failure cases in The form of oxygen and bag valve mask ventilation
12. **Recognize** respiratory failure patients who need mechanical ventilation, stabilize and immediately arrange for referral to ICU care

## Respiratory cases in The ER

1. Bronchial asthma
2. Pneumonia
  - a. Community acquired
  - b. Aspiration pneumonia
3. Upper respiratory tract infections
  - a. Croup and laryngitis
  - b. Epiglottitis
4. Pneumothorax
5. Pulmonary embolism
6. Chronic obstructive airway disease
7. Hemoptysis
8. Foreign body inhalation
9. Respiratory emergencies of important infections (HIV, T.B)
10. Respiratory failure due to various causes

## Hepatic emergencies

### Knowledge

#### Topics and lectures for hepatic emergencies

1. Liver failure
2. Management of gastrointestinal bleeding in The emergency
3. Other hepatic emergencies

1. **Discuss** The causes, clinical presentation and complications of acute hepatic failure (both DeNovo and on top of chronic)
2. **Outline** The methods for diagnosis and management of liver failure in The ER
3. **Define** hematemesis and list its most important causes in Egypt. In addition outline clinical presentation to The ER, methods of diagnosis and principles of management
4. The **causes of jaundice** that presents to emergency, associated clinical signs and symptoms and investigations required to establish diagnosis
5. **Recall** The causes for emergency visits in case of liver transplant recipient

### Skills

1. **Assess** patients with possibility of liver cell failure and initiate investigations to establish diagnosis
2. **Stabilize** liver cell failure patients, manage its complications and consult hepatology specialists or refer for ICU care
3. **Control** bleeding in case of variceal hematemesis, provide blood product transfusion if indicated and refer timely to specialty care
4. **Initiate** investigations in cases of acute jaundice and refer to appropriate specialty care (fever hospital, surgery hepatology specialty or in patient service)
5. **Carefully** choose drugs that don't exacerbate liver injury in case of hepatic emergencies

#### Hepatic presentations to The ER

1. Acute liver cell failure
2. Hepatitis
3. Jaundice for D.D
4. Hematemesis due to portal hypertension

## Gastrointestinal emergencies

### Topics and lectures in gastrointestinal emergencies

1. Diagnosis and management of acute abdominal conditions in The ER
2. Upper gastrointestinal bleeding
3. Lower gastrointestinal presentations to The ER

### Knowledge

1. Discuss The causes of acute abdomen, associated clinical manifestations, differential diagnosis and The principles of management in The ER
2. **Outline** The causes of non hepatic upper GIT bleeding, investigations and initial management
3. **List** causes of anal pain and lower GIT bleeding and mention The role of emergency physician in The diagnosis and treatment of these conditions

### Skills

1. **Have an A B C D E** management approach for acute abdomen , through effective fluid resuscitation, control of pain, appropriate antibiotic prescription and use of nasogastric tube
2. **Identify** rapidly cases that need surgical intervention and differentiate cases that require hospital admission from those managed in The ER and discharged safely to primary care
3. **Interpret** radiological imaging studies and requested labs in various acute abdomen conditions
4. **Manage** shock effectively in patients presenting with bleeding and provide timely blood transfusion
5. **Treat** patients presenting with non variceal GIT bleeding according to nationally accepted guidelines and consult appropriate specialties
6. **Manage** shock and control pain in case of lower GIT bleeding, provide blood transfusion if indicated and refer to appropriate specialty or primary care

### Gastrointestinal emergencies (cases)

1. Acute abdomen due to GIT causes
  - a. Peptic ulcer
  - b. Pancreatitis
  - c. Cholecystitis and Cholangitis
  - d. Biliary colic's
  - e. Bowel obstruction
  - f. Acute appendicitis and Meckel's diverticulum
  - g. Intestinal perforation , volvulus and colitis
  - h. irreducible or strangulated Hernia
  - i. Inflammatory bowel diseases
2. Hematemesis in The ER
  - a. Variceal bleeding
  - b. Duodenal /gastric ulcer
  - c. Coagulation disorders
3. Lower GIT bleeding and anal pain
  - a. Anal fissure, anorectal abscess, fistula and pilonidal sinus
  - b. Rectal prolapse
  - c. Colitis /tumor

# Hematological emergencies

## Hematological Topics and lectures

1. anemia in The emergency room  
( a guide for diagnosis and treatment )
2. bleeding in The ER
3. disseminated intravascular coagulopathy
4. congenital and acquired thrombophilias
5. fever with neutropenia
6. blood transfusion

## Knowledge

1. **Discuss** The causes of pallor, The reason for its presentation to The ER, other associated signs and symptoms and differential diagnosis
2. **Outline** the most common coagulation disorders that present to emergency physicians. These include both bleeding disorder and tendency for coagulation
3. **Describe** The causes and management of disseminated intravascular coagulopathy (DIC)
4. **Summarize** The diverse clinical presentations of sickle cell anemia to The ER
5. **Define** fever with neutropenia, list its causes and principles of management in ER
6. **Discuss** The indications for blood and blood product transfusion in The ER, universal precautions and management of blood transfusion reactions

## Skills

1. **Assess** patients with various hematological presentations, initiate investigations and apply emergency treatment
2. **Appropriately** request and interpret hematological investigations (CBC,PT,PTT, etc)
3. **Provide** blood and blood products transfusions judiciously and when indicated
4. **Recognize** and promptly manage blood transfusion reactions
5. Prescribe iv fluids and pain killers for sickle cell anemia and ask for hematologists help
6. **Stabilize** patients with DIC and transfer for intensive care
7. **Risk stratify** febrile neutropenic patients and initiate treatment and refer for inpatient admission

## Hematological presentations and cases in The ER

1. **Anemias**
  - a. Anemia for DD
  - b. iron deficiency anemia
  - c. Glucose six phosphate dehydrogenase deficiency (favism)
  - d. thalassemia and spherocytosis
  - e. sickle cell anemia
2. **Bleeding tendency**
  - a. purpura and thrombocytopenia
  - b. hemophilia
  - c. patients on anticoagulants
3. **Disseminated intravascular coagulopathies**
4. **Thrombophilias**
  - a. spontaneous venous thrombosis
  - b. gangrene
5. **The fever with neutropenia**
  - a. aplastic anemia
  - b. lymphoma and leukemia



## Oncological emergencies

The topic will be covered in one lecture

- oncological emergencies

Upon completion of emergency and internal medicine rotations, trainees should attain the following learning outcomes related to both knowledge and skills:

### Knowledge

1. list emergencies related to local tumor progression, their clinical presentation and methods of diagnosis
2. enumerate metabolic complications of malignancy, their signs and symptoms and initial management steps in The ER
3. define emergencies related to oncological treatment and how to suspect them in The ER
4. outline The role of emergency physician in The management of tumor related emergencies

### Skills

1. Recognize, resuscitate and stabilize patients presenting with the following complications secondary to tumor progression:
  - acute spinal cord compression
  - upper airway obstruction
  - malignant pleural or pericardial effusion
  - increased intracranial tension
  - superior vena cava syndrome
2. ensure early involvement of oncologists
3. diagnose and initiate treatment of metabolic complications of malignancy and timely refer for oncology services
  - a. hypercalcemia
  - b. inappropriate secretion of The antidiuretic hormone
  - c. adrenocortical insufficiency
4. recognize The complications of oncological treatment and initiate management or timely refer
  - a. tumor lysis syndrome
  - b. fever with neutropenia
5. manage pain related to malignant tumors when present to emergency

### Oncological cases in The ER

1. patients presenting with tumor spread related emergencies
  - a. increased intracranial tension (severe vomiting, sudden headache or blurring of vision)
  - b. respiratory distress secondary to pleural or pericardial effusion
  - c. acute flacid paralysis secondary to spinal cord compression
  - d. upper airway obstruction
2. metabolic oncological presentations

## Neurological emergencies

### a. Headache

#### Knowledge

Upon completion of emergency medicine rotations, Trainees should be able to:

1. **Outline** The common, important and life threatening causes of headache presentation to The ER
2. **Describe** The different methods for investigating a case of headache, including The role of imaging

#### Skills

Upon completion of emergency medicine rotations, Trainees should be able to:

1. **Differentiate** between benign and serious headaches and initiate appropriate investigations
2. **Manage** simple headache cases and discharge safely to primary care
3. **Consult** neurologists/neurosurgery for management and referral of serious and unusual causes of headache

### b. Status epilepticus

#### Knowledge

1. **Discuss** The causes , manifestations and complications of status epilepticus
2. **Outline** The difference between status epilepticus and pseudoseizures
3. **Describe** The management algorithm and indications for various pharmacological agents

#### Skills

1. **Stabilize** The patient using The ABCDE approach
2. **Abort** The epileptic attack using appropriate medications
3. **Consult** neurologist for further care and referral

### c. Coma

#### Knowledge

1. **Describe** The causes and differential diagnosis of various types of coma
2. **Outline** The coma scoring system (GCS)
3. The indications for mechanical ventilation in case of coma

#### Skills

1. **Stabilize** comatose patients and initiate appropriate investigations
2. **Perform** complete neurological examination and classify coma severity according to GCS

### d. Meningitis and encephalitis

#### Knowledge

1. **Describe** the clinical features, diagnostic workup and differential diagnosis of CNS infection Skills

#### Skills

1. **Assess** and diagnose cases with possibility of CNS infection using appropriate investigations techniques (CT scan and lumbar puncture)
2. **Stabilize** patients and initiate urgent treatment
3. **Refer** appropriately and early for concerned specialty

### e. Cerebrovascular emergencies

#### Knowledge

1. **Discuss** the causes, clinical presentation and differential diagnosis of common and important cerebrovascular presentations to The emergency
2. **Outline** important investigations that could aid in the diagnosis at the ER Skills

#### Skills

1. **Recognize** early The manifestations of transient ischemic attacks and request specialists advice

### f. Other neurological emergencies

1. Increased intracranial tension
  - a. Recognize patients with increased intracranial pressure and initiate treatment after consultation with neurosurgery/neurology
2. Movement disorders
  - a. Differentiate vertigo from ataxia and recognize patients presenting with dystonia
3. Hydrocephalus
  - a. Identify patients with possibility or obstructed or infected shunt and request specialist care
4. Acute flaccid paralysis
  - a. Differentiate patients with Guillain-Barre syndrome from other causes of acute flaccid paralysis
5. Others
  - a. Suspect The diagnosis of tetanus and timely refer
  - b. Be aware of The following neurological presentations
    - i. Emergency presentation of myasthenia gravis, multiple sclerosis and peripheral neuropathies
    - ii. Emergency presentation of brain tumors

## Renal emergencies

### a. Acute renal failure

#### Knowledge

1. **Discuss** the causes and strategies for management of pre-renal failure
2. **The etiology and clinical presentations** of patients with possible urinary tract obstruction
3. **Outline** The initial investigations needed to assess severity and cause of acute renal failure
4. **Explain** The indications for dialysis, its different types and possible complications

#### Skills

1. **Recognize** and initiate management for patients with acute pre-renal failure (through proper clinical evaluation and interpretation of laboratory results)
2. **Recognize** and Initiate investigations for patients with acute renal failure and consult appropriately renal specialists

### b. Urinary tract infection in adult and children

#### Knowledge

1. **Discuss** the causes, microbiology, clinical manifestations, investigations and treatment of urinary tract infection in adults and children
2. **List** indications for admission and reasons for referral for specialist care

#### Skills

1. **Diagnose** cases with urinary tract infection including pyelonephritis
2. **Diagnose** cases with urinary tract obstruction
3. **Interpret** The results of urine dipstick , urine microscopic analysis and urine culture
4. **Select** and initiate appropriate antimicrobial therapy
5. **Organize** patient further pathways according to diagnosis and risk factors ( hospital admission, referral to nephrology or referral to primary care)

c. Emergencies for patients with renal replacement therapy and other renal disorders

### Knowledge

1. **Outline** The most important causes for emergency presentations to patients on dialysis or renal transplant recipient
2. **Describe** briefly other emergency presentations of renal diseases ( rhabdomyolysis, hemolytic uremic syndrome, hepato-renal syndrome, generalized edema, frank hematuria and proteinuria )

### Skills

1. **Recognize** and immediately treat life threatening complications like hyperkalemia
2. **Identify** those who need dialysis and liaise with nephrologists
3. **Initiate** investigations for other renal emergencies and timely consult nephrologists

## Urology in the ER

### Renal and urological Topics and lectures

1. acute renal failure
2. urinary tract infection (guideline for diagnosis and management in adults and children)
3. urological emergencies

### Knowledge

1. **List** The causes of acute urinary retention and how to manage
2. **List** The indications for suprapubic catheterization and know how to perform it
3. **Outline** The etiology of acute scrotal pain, how to diagnose different disease that lead to it
4. **Explain** The clinical presentation of renal calculi that lead to emergency room visits
5. **Recall** The causes of other important urological conditions that could be presented to The emergency (all conditions will be listed in The cases table)

### Skills

1. **Apply** competently urethral catheter to release urine retention
2. **Recognize** patients presenting with conditions listed in The case table

### Renal cases in The ER

1. acute renal failure (DeNovo or on top of chronic)
2. urinary tract infection (adults and children)
3. life threatening electrolyte disturbances
4. hemolytic uremic syndrome
5. hematuria for DD
6. proteinuria for DD

### Urological conditions in The ER

1. acute retention of urine
2. acute scrotal pain
3. renal colic
4. emergency penile conditions
  - a. priapism
  - b. fracture of penis
5. gangrene of The scrotum
6. phimosis and paraphimosis
7. prostatitis

and  
ask for immediate urological support or refer for specialist care

## Dermatological emergencies

### Topics and lectures for dermatology

- Dermatological emergencies (diagnosis and management)

### Knowledge

Upon completion of emergency medicine rotations, Trainees should be able to:

1. **Outline** The causes, clinical manifestations and potential complications of common and important dermatological emergencies presented to emergency physicians
2. **Discuss** initial management steps that must be done in The emergency room and list The indications for referral to dermatology or other care units

### Skills

1. Carefully **take a structured history** as traveling abroad, drug intake, previous illness
2. In case of possible drug reaction, he should be able to **analyze** The drug history of The patient and identify The possible causative drug
3. **Have a high index** of suspicion in order to diagnose life threatening dermatological conditions like toxic epidermal necrolysis and to differentiate it from other disorders like Steven johnson syndrome
4. **Initiate** treatment rapidly and cooperate with dermatologists and other important specialties
5. **Assess** the air way and manage upper airway obstruction in case of severe allergic conditions or rapidly growing infantile hemangioma
6. **Manage** cases of anaphylaxis
7. **Manage** different types of skin infections either independently or under senior or dermatology supervision (according to level of training)
8. **Diagnose** adults and children presenting with fever and rash. Specifically, he should be able to recognize **meningococemic rash** and initiate rapid management or referral

### Dermatological cases presented to ER

- |                              |                               |
|------------------------------|-------------------------------|
| 1. Vesiculobullous disorders | 3. Skin infections            |
| -Toxic epidermal necrolysis  | -Cellulitis                   |
| - Steven johnson syndrome    | -Erysipelas                   |
| -Pemphigus vulgaris          | -Necrotizing fasciitis        |
| 2. Allergic skin problems    | -Reversal reaction in leprosy |
| -Urticaria                   | -Neonatal herpes simplex      |
| -Angioedema                  | 4. fever with rash            |
| -Anaphylaxis                 | -Meningococcal meningitis     |
|                              | -Childhood exanthemata        |
|                              | 5. Autoimmune disorders       |

## Psychiatric emergencies

Upon completion of emergency medicine and psychiatry rotation, Trainees should have the following knowledge and skills

### Psychiatric lectures and topics

1. assessment and emergency management of suicidal patients
2. assessment and emergency management of agitated and violent patients
3. The medical causes of psychiatric symptoms
4. substance abuse and substance withdrawal
5. anxiety and depression in The ER
6. recognition and management of victims of domestic violence

### Knowledge

1. **List** life threatening and important psychiatric conditions that could be presented to the emergency service. Discuss their causes, clinical presentations, methods of diagnosis and initial management plan that should be started in The ER
2. **Highlight** medical life threatening conditions that could be presented by psychiatric symptoms to The ER (delirium and acute psychosis)
3. **Explain** different passive and active techniques that should appropriately be used to protect emergency staff in case of real anticipation of violence
4. **Outline** medicolegal issues surrounding The management of psychiatric emergencies

### Skills

1. **Perform** a rapid focused psychiatric interview to obtain all necessary data
2. Beside physical examination, he should be able to **perform** a complete mental status examination
3. **Risk stratify** psychiatric emergencies according to the risk of harm to self or others and according to the life threatening nature of the condition and refer appropriately to inpatient or outpatient care
4. **Recognize** suicidal patients, stabilize them and timely involve psychiatry specialist
5. **Timely recognize** and initiate management for cases presented with delirium or psychosis secondary to medical emergencies ( like renal or hepatic failure)
6. Early **identify** emergency presentations of patients on psychiatric medications (neuroleptic malignant syndrome and serotonin syndrome). stop The medication, adequately hydrate and involve specialist
7. Judiciously **use** various types of restrains in case of real risk of violence (passive and active restrain)
8. **Recognize** cases with psychiatric symptoms related to substance abuse or intoxication and initiate management after psychiatric consultation
9. Be able to **differentiate** real from factitious illness in The ER
10. **Identify** cases of abuse and domestic violence and involve appropriate authorities
11. **Communicate** effectively with difficult patients and different age

### Psychiatric emergencies that could be presented to emergency department

- |  |  |
|--|--|
| <ol style="list-style-type: none"> <li>1. Major psychiatric presentations               <ol style="list-style-type: none"> <li>a. deliberate self harm/suicidal patients</li> <li>b. agitated or violent patients</li> </ol> </li> <li>2. Medical emergencies in psychiatry               <ol style="list-style-type: none"> <li>a. delirium</li> <li>b. acute psychosis</li> <li>c. neuroleptic malignant syndrome</li> <li>d. serotonin syndrome</li> <li>e. substance abuse/withdrawal</li> </ol> </li> </ol> | <ol style="list-style-type: none"> <li>3. Non life threatening psychiatric emergencies               <ol style="list-style-type: none"> <li>a. panic attacks</li> <li>b. disaster and grief reactions</li> <li>c. domestic violence</li> <li>d. rape</li> </ol> </li> <li>4. Malingering and factitious illnesses</li> </ol> |
|--|--|



## Trauma, wounds and burns

By The end of ATLS course and on job training at Emergency, surgical and orthopedic rotations, trainees should have the following knowledge and skills

### a. Major trauma and disastrous management

#### Knowledge

1. **Discuss** The epidemiology of trauma in Egypt, mechanisms of injury and different scoring systems used for trauma assessment
2. **Outline** The functions and responsibilities of trauma teams

#### Skills

1. **Assess**, resuscitate and stabilize trauma victims according to The ATLS principles and to The APLS principles in pediatric injuries
2. **Lead** ambulance services in emergency and disastrous situation
3. **Interpret** plain radiography and abdominal ultrasound for trauma patients
4. **Manage** pain adequately and recognize cases that need life saving or limb salvage surgery
5. **Consider** cervical injury possibility during management of trauma patients until proved otherwise
6. Frequently **reassess** trauma victims for ABCDE

### b. Head injuries

#### Knowledge

1. **Outline** The major anatomical landmarks of The head and The physiology of cerebral perfusion and intracranial pressure
2. **Explain** The intracranial consequences of head injury
3. **Describe** radiological changes expected in head trauma

#### Skills

1. **Recognize** and risk stratify patients presenting with head and injury and use different methods for neurological status assessment (GCS, AVPU) in adults and children
2. **Apply** The ABCDE approach in management, while taking care to prevent secondary brain injury
3. **Initiate** mechanical ventilation in indicated cases
4. Promptly consults neurosurgery and other indicated disciplines and optimize team work for the management of serious cases
5. **Manage** patients presenting with scalp laceration and minor head injury and discharge them safely (both adults and children)
6. **Interpret** imaging studies performed in the ER for head injury patients
7. **Identify** cases with suspected child abuse as a cause for head injury and notify appropriate authorities

**c. Chest Trauma****Knowledge**

1. **Recall** The anatomy of intrathoracic organs and The surface anatomy of The thorax
2. **Outline** The pathophysiology and possible consequences of chest trauma
3. **Summarize** The clinical manifestations, investigations needed and initial management and consultation plan in case of life threatening chest traumas

**Skills**

1. Timely **recognize** patients presenting with the following chest injuries and initiate resuscitation and stabilization according to The ATLS principles and to The APLS principles in pediatric injuries.
  - a. tension and open pneumothorax
  - b. flail chest
  - c. hemothorax
  - d. rib and sternal fractures
  - e. cardiac tamponade
  - f. aortic injury
  - g. diaphragmatic hernia
  - h. pulmonary or myocardial contusion
2. **Consult** cardiothoracic surgery or another involved disciplines in The appropriate time and avoid delays
3. **Undertake** needle thoracentesis and assist cardiothoracic surgeons and senior colleagues in insertion of intercostal tube drain and performance of pericardiocentesis
4. In case of minor chest injuries, **educate** patients before discharge

**d. Abdominal trauma****Knowledge**

1. **Recall** The anatomy of intraabdominal organs and The surface anatomy of The abdomen
2. **Outline** The mechanism of injury in blunt abdominal trauma and its clinical presentation
3. **Explain** The clinical presentation and causes of hollow viscus injury
4. **List** The indications for imaging studies in case of abdominal trauma

**Skills**

1. **Assess** and appropriately reassess trauma patients, resuscitate and stabilize according The ATLS principles and timely involve appropriate specialties
2. **Recognize** The effect of other injuries on abdominal organs
3. **Perform** and interpret abdominopelvic ultrasound and interpret CT imaging data
4. **Place** nasogastric tube in indicated cases and assist in peritoneal lavage

### d. Spinal injuries

#### Knowledge

1. Outline The basic anatomy and physiologic functions of The spinal cord and related structures
2. Discuss The causes and mechanism of injury to The vertebral column and spinal cord
3. Explain The clinical presentation of spinal injury ( in adults and children) and methods of diagnosis

#### Skills

1. **Stabilize**, resuscitate and competently perform spinal immobilization for patients with potential injury to The spinal cord
2. **Use** judiciously plain radiography, CT scan and MRI for diagnosis of spinal injury and be able to interpret them
3. Always **consider** The possibility of spinal cord injury in trauma patients and consult appropriate specialties
4. **Record** The neurological status of trauma patients using different scoring methods
5. **Recognize** patients presenting with neurogenic or spinal shock and initiate treatment
6. In case of children, he should be able to **examine** The spine and manage The irritable immobilized child
7. **Apply** The principles of being able to clinically "clear" The spine

### f. Maxillo facial trauma

#### Knowledge

1. **Describe** The basic anatomy of facial structures, mechanisms and complications of facial injuries, including different facial fractures
2. **Outline** The clinical presentation and method of diagnosis of temporomandibular joint dislocation
3. **Brief** on The features of injury for The following facial structures
  - a. Tongue
  - b. Facial nerve
  - c. Salivary glands
  - d. Lacrimal ducts

#### Skills

1. **Recognize** cases with facial injury and threat to The airway, insure proper oxygenation and call for immediate consultations
2. **Characterize** maxillofacial injuries and differentiate cases that need inpatient from outpatients treatment
3. **Recognize** The implications of facial injury on hemodynamics
4. **Control** bleeding from nasopharynx and from tongue lacerations
5. **Ensure** cosmetic results after facial suturing

## Burns

By The end of training at Emergency, surgical and plastic surgery rotations, trainees should have the following knowledge and skills

### Knowledge

1. **Explain** The pathophysiology of burns and The principles of burn management (in adults and children)
2. **Brief** on special types of burn ( chemical and electrical burn)

### Skills

1. Immediately **recognize** burn cases with threat to The airway and initiate management using The ABCDE approach
2. **Assess** and define The size and depth of burn and accordingly calculate The estimated fluid loss
3. After initial management and stabilization, he should **refer** to specialized burn centers
4. **Manage** minor burns and arrange for safe disc
5. **Undertake** escharotomy
6. In case of suspecting child abuse, he should **notify** authorities and arrange for psychiatric consultation

## Wound Management

By The end of training at Emergency, surgical and plastic surgery rotations, trainees should have the following knowledge and skills

### Knowledge

1. **Discuss** The classification and description of wounds
2. **Outline** various wound closure techniques
3. **Describe** reasons and manifestations of wound infection and The role of antibiotics in wound management
4. **Recall** The features of special wounds ( e.g. punctures and bites)
5. **List** indications for tetanus immunization

### Topics and lectures for Trauma in The ER

1. Advanced trauma life support (course)
2. Advanced pediatric life support (course)
3. Principles for management of head injuries in emergency
4. Presentation, diagnosis and management of spinal injuries in The ER
5. Chest injuries in emergency
6. Diagnosis and management of abdominal traumas
7. Basic concept in maxillofacial injuries
8. Management of burns

## Skills

- .....
- .....
- ..... 11. **Assess** wounds and underlying structure, provide analgesia and ensure adequate exploration , cleaning and debridement
- ..... 12. **Decide** if wound should be closed or not and ask for senior help when indicated
- ..... 13. In case of wound closure, **Use** local anesthesia, appropriate suturing material and document The procedure before referring patient for further
- ..... ther
- ..... follow up
- .....

### Trauma cases expected during various rotations

- |   |  |
|---|--|
| <ol style="list-style-type: none"> <li>1. Major multiple traumas in adults</li> <li>2. Major multiple traumas in children</li> <li>3. Head injuries               <ol style="list-style-type: none"> <li>a. Post concussion syndrome</li> <li>b. Brain contusion and diffuse axonal injury</li> <li>c. Extradural, subdural and intracerebral hematoma</li> <li>d. Scalp , face and neck lacerations</li> <li>e. Skull fissure fracture</li> <li>f. Skull depressed fracture</li> <li>g. Fracture base</li> </ol> </li> <li>4. Chest traumas               <ol style="list-style-type: none"> <li>a. Tension and open pneumothorax</li> <li>b. Flail chest</li> <li>c. Hemothorax</li> <li>d. Rib and sternal fractures</li> <li>e. Cardiac tamponade</li> <li>f. Aortic injury</li> <li>g. Diaphragmatic hernia</li> <li>h. Pulmonary or myocardial contusion</li> </ol> </li> </ol> | <ol style="list-style-type: none"> <li>5. Abdominal trauma               <ol style="list-style-type: none"> <li>a. With organ laceration/injury</li> <li>b. With hollow viscus injury</li> </ol> </li> <li>6. Spinal injuries               <ol style="list-style-type: none"> <li>a. Vertebral fractures</li> <li>b. Spinal cord transection</li> </ol> </li> <li>7. Maxillofacial injuries               <ol style="list-style-type: none"> <li>a. Nasal fractures</li> <li>b. Mandibular fractures</li> <li>c. Zygomatic fractures</li> <li>d. Orbital fractures</li> <li>e. Le fort fractures</li> <li>f. Dental avulsion and fractures</li> <li>g. TMJ dislocation</li> <li>h. Tongue lacerations</li> </ol> </li> <li>8. Different types of wounds</li> <li>9. Different degrees of burns</li> </ol> |
|---|--|

## Orthopedics

Upon completion emergency medicine and orthopedic rotations, Trainees should have adequate knowledge and deep understanding of:

1. The general principles for the diagnosis and management of fractures and joint injuries
2. The clinical presentation, diagnosis and management of common and important upper and lower extremities musculoskeletal injuries
3. The clinical presentation, diagnosis and basics of management of pelvis and spinal injuries

### Orthopedic Topics and cases for emergency trainees

General topics/ cases	Upper extremity	Lower extremity	Trunk
Principles for management of fractures and joint injuries	<b>Shoulder and arm</b> 1. Fracture clavicle, proximal humerus, scapula 2. ACJ and SCJ injuries 3. Dislocated shoulder 4. Fracture humerus shaft	<b>Hip and thigh</b> 1. Dislocation of hip 2. Fracture upper femur 3. Fracture shaft femur 4. Fracture lower end femur	<b>Pelvis</b> 1. fractures 2. management of bleeding related to vertebral fractures
Open fractures			
Compartment syndromes			
Nerve injuries			
Crush injuries			
<b>Pediatric trauma</b> 1. Epiphyseal plate Injury 2. Birth fractures 3. Child abuse 4. Differences between fractures in adults and children	<b>Elbow and forearm fractures</b> 2. Dislocation elbow and pulled elbow 3. Fracture radius and ulna 4. Forearm compartment syndrome	<b>Knee and leg</b> 1. Meniscal injuries 2. Knee ligaments injury 3. Patella fracture and dislocation 4. Knee dislocation 5. Tear & rupture of quadriceps and ligamentous patellae 6. Rupture Baker's cyst 7. Tibial plateau fractures 8. Fractures Tibia and fibula	
<b>Skeletal infections</b> 1. Osteomyelitis 2. Acute septic arthritis 3. Bursitis and tenosynovitis	<b>Wrist and hand</b> 1. Fractures 2. Nail bed injuries 3. Hand compartment syndrome 4. Tendon injuries 5. Hand infections 6. Hand wounds and crush injuries	<b>Ankle and foot</b> 1. Ankle fractures 2. Ankle ligamentous injuries and dislocations 3. Tendo Achillis injuries 4. Fractures of foot bones 5. Crush injuries	<b>Spine</b> 1. Fracture spine 2. Neurological anatomy (dermatomes and myotomes) 3. Cord injury syndromes

## Orthopedic Skills

Upon completion emergency medicine and orthopedic rotations, Trainees should be able to perform the procedures mentioned below either as assistant or independently according to their level of training and supervision provided:

1. Safe reduction of shoulder dislocation
2. Application of above elbow POP
3. Safe reduction of distal radius fracture
4. Application of below elbow POP and short arm back slap
5. Safe reduction of dislocation of elbow and pulled elbow
6. Application of figure of 8 bandage, broad arm sling, Collar and Cuff or U shaped slab
7. Fasciotomy for forearm compartment syndrome
8. Safe reduction of pharyngeal dislocation
9. Safe reduction of simple phalangeal fracture
10. Application of hand splint
11. Splinting for fracture femur
12. Skin and skeletal traction
13. Reduction of patellar dislocation
14. Reduction of knee dislocation in case of limb threatening vascular compromise
15. Application of knee immobilizer
16. Arthrocentesis
17. Reduction of ankle lesions that needs urgent reduction
18. Application of above and below knee POP
19. Fasciotomy for leg compartment syndrome
20. Application of pelvic splint "Hammock"
21. Immobilization of fracture spine "log roll"

## ENT problems in the emergency

### Topics and lectures for ENT emergencies

1. Ear and throat emergencies
2. management of epistaxis
3. Identification and management of head and neck trauma ( basic guide for emergency doctors)

### Knowledge

Upon completion of emergency medicine and ENT rotations, Trainees should be able to:

1. Describe The common and important causes of ear pain together with their clinical pictures
2. Define epistaxis, mention its important causes and highlight The importance of excluding hypertension as a cause of epistaxis
3. Explain The different presentations of pain in The throat and why some of them are considered life threatening
4. Recall The different locations of foreign bodies in The head and neck and explain their expected complications and methods of removal
5. Be aware of different types of facial traumas (e.g. mandibular and nasal fractures) and principles for their initial management. In addition he should list important dental emergencies that presents to ER

## Skills

1. **Assess**, diagnose and manage common causes of ear pain ( otitis media, otitis externa, cholesteatoma)
2. **Initiate** treatment and refer to ENT specialist, the following conditions ( perforated tympanic membrane and mastoiditis)
3. **Remove** accessible foreign bodies ( from the ear and nose) and refer in case of anticipated difficulties
4. **Use** otoscope in the assessment of ear conditions
5. **Perform** anterior nasal packing and use nasal tampons. In addition he should assist ENT specialist in performing posterior nasal packing
6. **Suspect** nasal and mandibular fractures and refer for specialist care
7. **Suspect** patients at risk of air way compromise and timely involve appropriate specialist in the management of their conditions
8. **Observe** and assist ENT specialists in " indirect laryngoscopy"
9. **Diagnose** cases presented with vertigo and differentiate between vertigo and cerebellar symptoms
10. **Diagnose** and initiate management of patients presenting with sinusitis and seventh nerve palsy
11. Properly **manage** ear lacerations using appropriate suturing technique and avoid including the cartilage
12. Immediately **recognize** post-tonsillectomy bleeding, stabilize the patient and arrange for immediate referral
13. **provide analgesia** and antibiotic treatment for patients presenting with dental abscess

### ENT cases and conditions expected during ER rotations

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|--|---|
| <ol style="list-style-type: none"> <li>1. Ear pain               <ol style="list-style-type: none"> <li>a. otitis media and externa</li> <li>b. cholesteatoma</li> <li>c. perforated tympanic membrane</li> <li>d. mastoiditis</li> <li>e. foreign body</li> </ol> </li> <li>2. Epistaxis</li> <li>3. Sore throat               <ol style="list-style-type: none"> <li>a. tonsillitis and tonsillar abscess</li> <li>b. pharyngitis</li> <li>c. retropharyngeal abscess</li> <li>d. epiglottitis</li> </ol> </li> <li>4. Foreign bodies               <ol style="list-style-type: none"> <li>a. ear, nose</li> <li>b. throat, esophagus</li> <li>c. pharynx and larynx</li> <li>d. button batteries</li> </ol> </li> </ol> | <ol style="list-style-type: none"> <li>5. Vertigo</li> <li>6. Facial palsy</li> <li>7. Sinusitis</li> <li>8. Trauma to The head and neck               <ol style="list-style-type: none"> <li>a. mandibular fracture</li> <li>b. nasal fracture</li> <li>c. dental fracture and avulsed teeth</li> </ol> </li> <li>9. Ear lacerations</li> <li>10. Post-tonsillectomy bleeding</li> </ol> |
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## Eye emergencies

### Topics and lectures for ophthalmic emergencies

1. Common eye presentations to the ER, diagnosis and Management.
2. Intraocular traumas.

### Knowledge

1. Discuss the causes and clinical presentation of the common and serious eye emergencies (mentioned in The case list)
2. **Outline** the causes and mechanisms of 2. trauma to The eyes and explain its sequelae on various intraorbital structures

### Skills

1. **Diagnose** and initiate management diagnose and manage completely or timely refer patients presenting eye emergency conditions (mentioned in The case list) according to case complexity, The competency level of The trainee and The availability of ophthalmologist supervision
2. **treat** immediately patients presenting with ocular chemical burn

### Ophthalmic emergency cases

1. The red eye
  - a. conjunctivitis
  - b. corneal aberrations and ulcers
  - c. keratitis
  - d. foreign bodies
  - e. ocular burns
  - f. scleral inflammation
2. sudden visual loss
  - a. retinal hemorrhage
  - b. retinal vascular occlusion
  - c. vitreous hemorrhage
  - d. retinal detachment
  - e. optic neuritis
  - f. CNS causes
3. painful eye
  - a. glaucoma
  - b. uveitis and iritis
4. eye trauma
  - a. orbital fracture
  - b. retinal detachment
  - c. lens dislocation and hyphema
  - d. penetrating eye injuries
5. other eye problems
  - a. orbital cellulitis
  - b. cavernous sinus thrombosis
  - c. eye lid problems
  - d. dacryocystitis

## Vascular emergencies

### Topics and lectures for Vascular emergencies

1. arterial emergencies
2. deep venous thrombosis

### Knowledge

1. **Describe** The causes, clinical presentation and principles of treatment of common and important arterial problems that could be presented in The ER
2. The adverse sequelae and presentation of iatrogenic intra-arterial drug injection
3. The causes, differential diagnosis and principles of managing swollen calf in The ER

### Skills

1. **Resuscitate** arterial injury and emergencies , initiate appropriate investigations and timely consult or refer for specialty care
2. **Differentiate** between DVT and other causes of swollen calf and request appropriate investigations

### Vascular emergency cases

1. acute limb ischemia
2. aortic aneurysm and aortic dissection
3. acute abdomen secondary to mesenteric ischemia
4. iatrogenic ischemia secondary to Intra-arterial drug injection
5. traumatic vascular injuries

## Gynecological and obstetric emergencies

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 Upon completion of obstetric and gynecology rotations, trainees should have acquired the following Knowledge and skills

### Knowledge

#### Topics and lectures related to gynecological and obstetric emergencies

1. gynecological emergencies
  - a. bleeding
  - b. acute abdominal pain
2. obstetric emergencies
  - a. bleeding in pregnancy
  - b. trauma
  - c. preeclampsia and eclampsia
  - d. normal and abnormal delivery
  - e. neonate resuscitation in Delivery room
3. The medicolegal aspects of gynecological emergencies

1. **Describe** The gynecological causes of acute abdomen, their clinical presentations, differential diagnosis and principles for their management in The emergency department
2. **Outline** The causes of abnormal vaginal bleeding in different age groups and during pregnancy and list The differential diagnosis, methods of investigations and principles of management in emergency settings
3. **Describe** The emergency physician role in The management of sexual assaults
4. **Define** eclampsia and preeclampsia, outline The clinical presentation and management priorities
5. **Explain** The causes and consequences of trauma during pregnancy
6. **Brief** The stages of normal delivery, The features of complicated labor and The role of emergency physicians in each

### Skills

1. **Differentiate** patients with acute abdomen due to gynecological causes, stabilize and early involve gynecologist
2. **Use** ultrasound as an aid in The diagnosis of gynecological emergencies
3. **Resuscitate** and stabilize patients presenting with abnormal vaginal bleeding and call for specialty care
4. **Manage** cases of eclampsia (eclamptic fits) in The emergency, stabilize patients and call for obstetric help
5. **Identify** and refer cases with preeclampsia
6. **Recognize** The consequences of trauma in case of pregnancy and be able to resuscitate trauma pregnant patients
7. **Identify** victims of sexual assaults and involve appropriate authorities.
8. **Manage** normal labor in emergency situations and resuscitate the newborn. in case of abnormal labor during any stage, he should timely involve obstetricians

#### Gynecological and obstetric emergencies

1. acute abdomen
  - a. ectopic pregnancy
  - b. endometriosis
  - C. ovarian cyst and torsion
  - d. pelvic inflammatory disease
  - e. complications of fibroid
  - f. severe dysmenorrhea
2. abnormal vaginal bleeding
  - a. premenopausal
  - b. postmenopausal
  - c. during pregnancy (abortion, placenta previa and abruption placentae)

## Toxicology and environmental emergencies

### a. Toxicology

Upon completion of emergency medicine and toxicology rotations, Trainees should have acquired the following knowledge and skills

#### Knowledge

##### Toxicology emergency Topics and lectures

1. Principles of Toxicology
2. Toxins and Toxicants
  - a. Drugs
  - b. Industrial, Household, and Environmental Toxicants
  - c. Natural Products
3. Therapeutics

1. **Explain** The epidemiology of poisoning in Egypt and define The common types of ingestions by age groups
2. **Describe** The clinical features of common poisons and The principle of their management (e.g. salicylate poisoning, Paracetamol, antidepressants, etc)
3. **Highlight** The medicolegal aspects of poisoning and what emergency physicians should do to protect their patients
4. **Describe** The role of gastric lavage, activated charcoal, alkalization and antidote in The management of poisoning

#### Skills

1. **Recognize** The symptoms and signs suggestive of poisoning, stabilize The patients and call for help through immediate contact with poisoning centers
2. Carefully **obtain** drug history from patient and relatives to identify The causative agent
3. **Perform** gastric lavage only when indicated
4. **Recognize** cases suggestive of drug abuse stabilize and consult or refer to toxicology center. in The mean time The ER physician should involve appropriate authorities

##### Toxicological emergency cases

1. salicylate poisoning
2. paracetamol poisoning
3. antidepressants
4. benzodiazepines
5. opioids
6. accidental kerosene ingestion
7. ingestion of corrosives

## b. Environmental emergencies

Upon completion of emergency medicine rotations, Trainees should have acquired the following knowledge and skills

### Topics and lectures related to environmental emergencies

1. Temperature related emergencies
2. Electric burn and electric shock
3. Drowning and near drowning
4. Bites and envenomation

### Knowledge

1. **list** The common types of environmental emergencies seen by emergency physicians and outline their clinical manifestations and methods of treatment

### Skills

1. **Stabilize** and resuscitate patients using The ABCDE approach
2. **Provide** specific treatment if available or ensure safe referral
3. **Identify** associated complications if present
4. in case of scorpion or snake bite, he should be able to **recognize** The bite and initiate treatment through The immediate provision of passive immunization

### Environmental emergencies

1. hypothermia
2. heat stroke and heat exhaustion
3. hyperthermia related to medications
4. electric burn and electric shock
5. drowning and near drowning
6. industrial chemical exposure
7. pesticide and insecticide exposure
8. carbon monoxide poisoning
9. bites and envenomation

## Pediatric emergencies

Upon completion of emergency medicine rotations, Trainees should have acquired the following knowledge and skills

### Knowledge

1. **Summarize** The signs and symptoms that suggest life threatening or critical illnesses in neonates, infants and children
2. **Discuss** The Management of cardiopulmonary arrest according to APLS
3. **Explain** The etiology and clinical presentation of shock in infants and children
4. **Describe** The etiology and clinical presentation of different types of coma in infants and children
5. **Outline** The Causes and clinical presentation of childhood poisoning
6. **Describe** The Initial management of burns, drowning and traumatized children
7. **Explain** The etiology, clinical presentation and management of acid base disturbances and electrolyte imbalance in infants and children
8. **Recall** The causes and basics of management of childhood pain
9. **Highlight** The medicolegal and Ethical issues related to pediatric emergency

### Pediatric emergency topics and lectures

1. APLS
2. Emergency pediatrics as related to different organs/systems
3. Pediatric surgical emergencies ( principles of identification and stabilization)
4. Pediatric trauma
5. pediatric toxicology and environmental emergencies

## Skills

1. **Recognize** neonates, infants and children with critical or life threatening presentation related to any body organ/system
2. Timely **involve** pediatricians in the management of cases
3. **Assess** infants and children for fluid needs and manage different degrees of dehydration
4. **Differentiate** between types of electrolyte disturbances and initiate management appropriately
5. **Differentiate** between various types of acid base disturbances and initiate management appropriately
6. **Perform** cardiopulmonary resuscitation according to APLS
7. **Assess** and initiate management for different types of shock
8. **Assess** and manage different types of pain in infants and children
9. **Initiate** management and refer appropriately infants and children presenting with burns, multiple traumas and pediatric surgical emergencies
10. **Recognize** and initiate management for infants and children presenting with uncommon emergencies like drowning, cold injury, and electric injury, psychiatric and gynecological emergencies
11. **Communicate** effectively with parents and children in critical situations like communicating bad news
12. **Advise** parents about prevention of childhood injuries

### Pediatric emergency Cases

#### ***Case description***

##### **Respiratory emergencies**

1. Stridor
2. Wheezy infants and bronchial asthma
3. Pneumonia , effusion and pneumothorax
4. Foreign body inhalation
5. Respiratory failure due to various causes

##### **Cardiac emergencies**

1. Arrhythmias
2. Cyanotic heart diseases
3. Heart failure
4. Cardiogenic shock

##### **Neurological emergencies**

1. Coma
2. Convulsions
3. Stroke
4. Sudden weakness/ paralysis
5. Increased intracranial tension
6. Hypertensive encephalopathy

#### ***Case description***

##### **Metabolic emergencies**

- Electrolyte disturbances with or without dehydration
  - Acid-base disturbances
  - Diabetic ketoacidosis
  - Addisonian crises
  - Urea cycle defects
  - Aminoacidopathies
  - Hepatic coma

##### **Hematological emergencies**

- Acute hemolytic crises
- Sickle cell anemia in crises
- Febrile neutropenia
- Severe pallor for D.D
- Hypercoagulable conditions

##### **Other emergencies**

- Childhood injuries
- Burns and surgical Emergencies
- Shock, sepsis and DIC

## Pediatric procedural skills

**The following pediatric procedures should be competently performed by Emergency medicine trainees by the end of training**

1. Cardiopulmonary resuscitation according to APLS
2. Intravenous line insertion
3. Nasal-gastric tube insertion and gastric lavage
4. Oro- pharyngeal suction
5. Urinary catheter application
6. Intravenous fluid therapy
7. Blood product transfusion
8. Arterial and capillary sampling for blood gas analysis
9. Wound dressing
10. Simple Suturing of wounds

## Teaching and learning methods

The following methods of teaching and learning will be used in the fellowship of emergency medicine:

- Apprenticeship learning (experiential learning): where learning is through, observation, assisting trainers and consultants , supervised performance and independent performance
- Formal Teaching where the following methods will be used: Lectures, seminars, clinical rounds and workshops
- Self-study through using library, textbooks, journals and internet
- Attendance of meetings and conferences
- Completion of supervised research



### List of First part required lectures

Subject	Number
Applied basic sciences and Core emergency topics	
Regional and applied anatomy	4
Tissue repair and inflammation	1
Anticoagulants	1
Cardiopulmonary resuscitation	1
Pain, anesthesia and sedation	1
Diabetes	1
Acute coronary syndrome	2
Bronchial asthma	1
Initial assessment of multi trauma patients	1
Blood product transfusion and principles of fluid therapy	1
Unconsciousness and coma	1
Urine retention and renal colic	1
Burns	1

## List of emergency medicine lectures

Subject	Number
Emergency general topics	
General approach to patients in the emergency department	1
The unconscious patient	1
Shock	2
Anesthesia and pain management	2
Fluids and electrolyte disturbances	1
Cardiac emergencies	
Types of cardiac arrest	1
Infective endocarditis	1
Dysrhythmias	1
Acute coronary syndromes	2
ECG interpretation	1
Congestive heart failure and acute pulmonary edema	1
Neurological emergencies	
Meningitis and encephalitis	1
Stroke and transient ischemic attack	1
Epilepsy and status epilepticus	1
Hepatic and GIT emergencies	
GIT bleeding	1
Liver cell failure	1
Hematological emergencies	
Blood product transfusion	1
Deep venous thrombosis	1
Hematological emergencies	1

## Emergency medicine lectures (continue)

Subject	Number
Infectious emergencies	
General approach for identification and management of infections in the ER	1
The febrile child in the ER	1
Principles of infection control in ER	1
Oncology	
Oncological emergencies	1
Chest emergencies	
Pulmonary embolism	1
Upper air way emergencies	1
Lower air way emergencies	1
Bronchial asthma and obstructive airway disease	1
Endocrinologic emergencies	
Hypoglycemia	1
Diabetic ketoacidosis and hyperglycemia	2
Other endocrinologic emergencies	1
Ophthalmological emergencies	1
ENT emergencies	1
Renal emergencies	
Acute renal failure	1
Urinary tract infections	1
Urological emergencies	
Retention of urine	1
Hematuria	1
Testicular torsion and epididymitis	1

## Emergency medicine lectures (continue)

Subject	Number
Pediatric emergencies	
Advanced pediatric life support	1
Pediatric emergencies	2
Pediatric surgical emergencies	1
Dermatological emergencies	1
Assessment and stabilization of behavior in the ER	1
Gynecological emergencies	
Medical emergencies of pregnancy	2
Vaginal bleeding	1
Eclampsia and preeclampsia	1
Toxicology	
General management of poison patients	1
Carbon monoxide poisoning	1
Common poisons	1
Orthopedic emergencies	2
Autoimmune emergencies	1
Surgical emergencies	
Soft tissue infections	1
Acute abdomen	1
Emergency wound management	1
Acute limb ischemia	1
Aortic dissection and aneurysm	1
Burn management	1

## Methods of assessment

### Regulations

The general rules and regulations of assessment approved by the Egyptian fellowship board and published at the training handbook and also at the board web site applies for the emergency medicine specialty. In addition to the successful completion of the training program, all candidates must successfully pass three exams in order to get the fellowship certificate.

#### First part exam

The first part exam is a written exam. Trainees are allowed to sit for the first part exam after at least six months of training. Each candidate has three chances to pass the exam and one more additional chance may be granted in some special circumstances approved by the secretary general of the higher committee of medical specialties. It is to be noted that after one year of training each time the candidate choose not to enter the exam will be calculated as one of his three attempts

#### Pre-requisites for entering first part exam

Trainees should pass the following courses in order to be eligible for the first part exam

1. Local TOEFEL with a score of at least 500
2. Computer courses in word processing, power point and internet

#### Second part exam

The second part exam is a written exam. Trainees are allowed to sit for the second part exam after passing successfully the first part and after completion of the training period (three years). In addition, each candidate must submit his log book for final assessment. The log book requirements must all be completed and signed by the trainer and educational supervisor.

Each candidate has three chances to pass the exam and one more additional chance may be granted in special approved circumstances.

Audit or research project must be submitted, discussed and accepted by the scientific council before the second part exam

#### Clinical exam (third part)

The third part exam is a clinical and oral exam. Candidates who pass successfully the second part are allowed to sit for the third part. Again each candidate has three chances to pass the clinical exam and an additional fourth chance may be granted in special approved circumstances.

## The structure of the examination

The first part exam aims to test trainee's knowledge in basic science as it applies to the practice of emergency medicine. It also aims to test their knowledge in the basics of emergency medicine practice. The scientific council has made it very clear in The curriculum , which parts of The emergency curriculum must be studied in The first year and these parts will be The subject of assessment in The first part exam.

### The structure of the first part exam

PART I examination consists of two papers:

1. Paper I (2 hours): Multiple choice questions with a single best answer format. This paper will cover applied basic sciences mentioned in the curriculum.
2. Paper II (2 hours): short answer and /or problem solving questions and this paper test trainees' knowledge in the basics of emergency medicine that must be covered during the first year of training.

### The structure of the second part exam

The second part exam aims to test trainees' knowledge and skills in emergency medicine. In this exam all the curriculum will be covered.

Part II examination consists of four papers:

1. Two MCQ papers each two hours in duration. They are covering all emergency medicine topics. In both papers, facts, problem solving and management skills are going to be assessed. You will choose one best answer in each question
2. One short essay paper two hours in duration. It covers all emergency subspecialties. Questions will assess Trainees' knowledge about various diseases and their management.
3. In addition, one paper will be composed of problem solving questions (MCQ, short answer or extended matching question). It will test Trainees' problem solving skills.

### The structure of the third part exam

part III exam is a clinical and oral exam and is composed of the following components:

**OSPE:** The objective structured practical exam is a multiple station examination (10-12 stations) including ECG/ X-ray / CT Scans/ laboratory data reports/ simulated patients and stations for procedural skills on mannequins. The candidate rotates from station to station where he / she are tested on specific elements that measure his procedural, clinical and data interpretation skills.

**VIVA:** The oral exam which tests the candidates' ability to manage patients and explores his/her knowledge of making an accurate diagnosis and whether he/she understands the essentials of therapeutics. It also assesses his attitudes and interpersonal communication skills. It is based on a set of topics with opening and supplementary questions. The questions cards are

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..... prepared in advance together with the expected ideal answer and allocated  
..... marks. This allows a good objective basis for marking.

..... The candidate usually rotate through four oral committees, each committee is  
..... composed of two examiners and cover two emergency medicine domains. The  
..... duration of each examination is 10 minutes with a total of 80 minutes for the  
..... whole oral exam.

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